STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Environmental Management
DIVISION OF SITE REMEDIATION
291 Promenade Street
Providence, R.I. 02908-5767

June 3, 1994

Debra Carlson
Remedial Project Manager
U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Code 1823-Mail Stop 82
Lester, PA 199113-2090

RE: *Draft* Volume II, Phase II Remedial Investigation Report, Human Health Risk Assessment, Old Fire Fighter Training Area, Naval Education and Training Center, Newport, Rhode Island: April 1994.

Dear Ms. Carlson:

Please find attached comments generated by the Division of Site Remediation concerning the above referenced document. Of greatest concern to the Division is that proper documentation is provided which restricts future land use at the site. This documentation would support the elimination of the future land use scenarios as discussed in this document. The Division cannot offer its approval of this document until this documentation is submitted.

If you have any questions concerning the comments, please contact me at (401) 277-2797.

Sincerely,

Paul Kulpa

Paul Kulpa, Project Manager
Division of Site Remediation

cc: Warren S. Angell, DEM DSR
Richard Gottlieb, DEM DSR
Andrew Miniuks, USEPA Region I
Brad Wheeler, NETC

oldfhh.cmr

6/7/94 cc: PROJECT FILE
CODE 1822/TB
CODE 1831/SH
TRC-EC

Phase II Remedial Investigation Report
Human Health Risk Assessment
Old Fire Fighter Training Area
NETC, Newport, RI

1. **Page ES-5, Hazard Identification:**
Paragraph 1, Last Sentence.

"Detection frequency was the primary criterion used to determine whether or not a constituent was potentially site-related."

Historical information regarding incoming wastes also served as a primary indication of whether or not a specific contaminant was site-related. This should be noted in the report.

2. **Executive Summary, Exposure Assessment:**
Page ES-6, Paragraph 7/8.

Scenarios 4 and 5 of the Phase I HHRA include onsite groundwater ingestion and inhalation.

The report should indicate why the Phase I Risk Assessment includes residential and industrial/commercial exposure to groundwater and the Phase II Risk Assessment does not.

3. **Executive Summary, Exposure Assessment:**
Page ES-7, Paragraph 2.

Scenarios 1-4 are selected for Site 09 in Phase II based on current and anticipated use of the site, with an aim toward addressing all of the key human exposure media, and incorporate discussions with EPA Region I (1994b). . . . A residential scenario is excluded form the Phase II HHRA since this future land use is considered unlikely for the site."

This Risk Assessment has eliminated residential and commercial/industrial groundwater use scenarios from the **anticipated** land use. The Navy must restrict groundwater use at this site and submit deed restrictions or institutional controls for the site and all appropriate adjacent areas to the site. These restrictions must be submitted prior to regulatory approval of the document.

4. **Executive Summary, Exposure Assessment:**
Page ES-8, Paragraph 1.

"Groundwater is excluded as a potential exposure medium in Phase II. Specifically, ground water at Site 09 contains high levels of sodium and chloride and exhibits high conductivity (i.e., is brackish) and therefore not considered as a potable source of water for drinking or showering."

Before eliminating groundwater as an exposure medium consideration must be given to its use in an industrial scenario. Possible uses, among others, could include cooling water or rinse water. If, after consideration, groundwater is eliminated as an exposure medium then justification must be provided.

5. **Table ES-1, Summary of Cancer Risks and Non-Cancer Hazard Indices:**
Page ES-10.

Scenario 2 (Current/Future Shellfishing) should contain, as an exposure medium, incidental ingestion of sediment since shellfish are known to have such matter in them when consumed by humans.

6. **Section 2.3, Data Evaluation:**
Page 2-9, Paragraph 2.

A notation, referencing step 7, should be provided after the sentence which describes whether one half or the full SQL value is used.

7. **Section 2.9, Selection of Constituents of Potential Concern:**
Page 2-22, Paragraph 6.

This section of the report delineates the criteria employed for determining the COC for inorganics. The average concentration for some of the background inorganics are higher than the background concentrations normally observed in the State (for example, lead and nickel). This would seem to indicate that some of the background sample locations were taken from potentially contaminated areas. Therefore, the minimum observed background concentrations should be used in lieu of the average background concentrations.

8. **Section 2.9, Selection of Constituents of Potential Concern:**
Page 2-23, Third Bullet.

Please explain the rationale for eliminating essential nutrients from consideration as a COC. For example, copper, zinc, and cobalt are essential nutrients, but are only required in trace amounts by the human body. Elevated concentrations in the environment, therefore could be of concern.

9. **Section 3.2.1, Inorganics:**
Page 3-5, Paragraph 2.

"Thus, the filtered groundwater data are thought to be more reflective of the actual dissolved concentrations of inorganics generally available for transport through groundwater."

For clarity the following should be added to the above:
However, as a conservative approach, the risk assessment only utilized non filter samples in the contaminant concentration analysis.

10. **Section 3.1, Potential Routes of Migration:**
Page 3-2, Paragraph 4.

This section of the report delineates the various parameters which are used to determine potential routes of migration.

The report indicates that compounds with high or low Koc, Kow, Henry Law Constants, etc. are more or less likely to be mobile, bound to the soil, etc. The report is a public document, therefore the report should include the appropriate ranges for these parameters, (that is, compounds with a solubility less than a certain value are considered to be insoluble, compounds with a solubility greater than a certain values are considered to be soluble, volatile, etc.).

11. **Section 3.2.1, Volatile Organic Compounds:**
Page 3-6, Paragraph 3.

"The Henry Laws constants for these VOC range from 4.7E5 atm.M/mol (2-butanone) to 2.1E +2 atm-m/mol (tetrachlroethene)."

The risk assessment is a public document therefore the report should interpret the quoted Henry Laws constants. (For example, the compounds at the site were found to be volatile, or the compounds at the site ranged from non volatile to volatile, etc.). In a similar manner, the report should interpret the other pertinent parameters, solubility, Koc, Kow etc..

12. **Section 3.2.3, Semi-Volatile Organic Compounds:**
Page 3-9, Paragraph 1.

If filtered ground water samples were not analyzed for SVOC's please explain how the rationale for stating that SVOC's in ground water may be attributable to their association with particulates in unfiltered samples.

13. Section 4.3, Constituents for Which EPA Has Not Developed Toxicity Criteria: Page 4-8, Paragraph 2.

It is noted that EPA proposes an interim cleanup level for lead of 500 to 1,000 mg/kg. It should also be noted that the State of Rhode Island has a cleanup level for lead of 300 mg/kg. This reference and other such references throughout the document should reflect this.

14. Section 5.1, Selection of Exposure Scenarios and Pathways: Page 5-3, Paragraph 1.

"A residential scenario is excluded from the Phase II HHRA since this future land use is considered very unlikely."

Please explain the new information that has come to light which justifies the exclusion of the residential scenario from the Phase II HHRA when it was considered in the Phase I HHRA. If indeed the residential scenario does not warrant inclusion in the Phase II HHRA then documentation in the form of deed restrictions or other legally binding documentation must be provided which guarantees non-residential use at this site.

15. Section 5.1, Selection of Exposure Scenarios and Pathways: Page 5-3, Paragraph 1.

"Groundwater is excluded as a potential exposure medium in Phase II since ground water at Site 09 contains high levels of sodium and chloride and exhibits high conductivity (i.e, is brackish) and therefore not considered a potable source of water for drinking or showering."

In order to exclude the groundwater scenario, complete justification for the above statement must be included in the report. This justification should include, at a minimum, a table which compares the observed onsite sodium, chloride, conductivity results, etc., with that normally associated with "brackish water", and the appropriate calculations or modeling results for the zone of influence for a off site water supply well. The latter would provide information concerning the areas outside of the site, for which groundwater deed restrictions or institutional controls are required. In addition, ground water could be used in a commercial/industrial scenario (See comment # 4).

16. **Section 5.2, Estimation of Exposure Point Concentration: Page 5-5, Paragraph 2.**

"Although a wide variety of factors affect the ratio of hexavalent to trivalent chromium (e.g. soil type and characteristics), the above percentages are believed to be reasonable for use in this HHRA."

The report must further delineate the appropriate factors which affect the chromium ratios and indicate how site conditions favor the trivalent over the hexavalent form. In addition, the report should note whether analysis of hexavalent/trivalent chromium was conducted during historic sampling events, such as the Confirmation Study. If this information is not available than the chromium concentrations should be reported in the more toxic form.

17. **Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.**

This section of the report utilizes a residential occupancy time for shell fish ingestion exposure time. Shellfish exposure duration is not necessary related to residential occupancy factors. Therefore, the exposure time for this scenario should be increased to seventy years.

18. **Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.**

"For this scenario, adult residents are assumed exposed to constituents in shellfish (mussels and claims) from near-shore and off-shore locations near Site 01 through ingestion."

This scenario has not considered ingestion of shell fish by children. Ingestion of shell fish is not limited to adults. In addition, children are more sensitive to contaminants in shell fish than adults. Therefore, this scenario must include exposure to children.

19. **Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.**

"The shellfish ingestion rates (1200 mg/d for mussels and 1200 mg/d for clams) are based on an estimate of seafood serving sizes (150,000 mg/meal) and Rhode Island survey data on the number of hard-shell clam (ie quahogs) meals eaten per year (2.9 meals/yr) provided by RIDEM (Narragansett Bay Project)".

This report is a public document. Therefore, the quoted ingestion rates should also be presented in lbs/day. All other pertinent parameters, such as the weight of adults, etc., should also be presented using the English System.

20. Section 5.3, Estimation of Exposure Doses/Scenario 3 (Future Shellfishing): Page 5-9, Paragraph 2.

"The shellfish ingestion rates (1200 mg/d for mussels and 1200 mg/d for clams) are based on an estimate of seafood serving sizes (150,000 mg/meal) and Rhode Island survey data on the number of hard-shell clam (ie quahogs) meals eaten per year (2.9 meals/yr) provided by RIDEM (Narragansett Bay Project."

The quoted ingestion rates do not consider subsistent individuals. The report must also considered subsistent individuals and utilize the appropriate ingestion rate (36.5 meals/year).

21. Section 5.3 Estimation of Exposure Doses/Scenario 4 (Commercial/Industrial): Page 5-10, Paragraph 1.

See comment #4 for groundwater consideration under this scenario.

22. Section 6.1 Quantitative Risk Assessment: Pages 6-5 & 6-9, First Bullet each Page.

See comment # 13 with respect to lead cleanup levels.

23. Section 7.3.1, Current and Anticipated Future Land Use Page 7-7, General Comment on Section.

Unless it can be documented through deed restriction or other legal means that residential use will not occur on the site then this scenario must be considered.

24. Section 7.3.4, Exposure Parameter Values: Page 7-9, First Bullet, Paragraph 2.

It is stated that for adults, in scenario 1, an exposure duration of 25 years which represents the 95th percentile for the number of years worked at one location is conservatively assumed. Page 5-9 states this represents the 90th percentile. Please clarify.